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ABSTRACT

Operating room nursing is not a formal part of the generic nursing curriculum. A learning needs assessment can serve to identify inservice education needs of operating nurses. In this study, a factor analysis was performed on the responses of 1,201 practicing operating room nurses to a list of 24 behaviorally-stated learning needs. Four factors, Technical Operating Room Skills, Nursing Research and Evaluation Skills, Direct Patient Care Skills and Personnel Management Skills were identified. The learning needs of practicing operating room nurses with different levels of formal education, nursing experience, and staff position are examined. (Author)

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A Learning Needs Assessment of Operating Room Nurses

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A Learning Needs Assessment of Operating Room Nurses

There is a critical need for registered nurses prepared to practice in the specialty area of surgery . (HEW, 1969) According to Laufman (1973):

> Surgical care remains a major segment of all patient care and is the fastest growing of all specialities. Until three decades ago, no more than 30 percent of the hospitalized patients in civilian life were admitted for surgical operations. A decade ago this figure reached 50 percent. Today it is close to 60 percent and is predicted at 70 percent within the decade (p. 68).

A review of statistics from hospitals of 150 or more beds reveals that operating visits per 100 admissions increased 7.36 percent from 1971 to 1975 (AHA, 1971; 1975). For the calendar period January 1 to June 30, 1975, operating room visits per 100 admissions averaged 57.5 percent (AHA, 1975).

Technological advancements in surgical procedures account for much of the increased utilization and success of surgery as a mode of treatment. Examples of such advancements are: the use of extra-corporeal circulation to perform open heart surgery; the development and implantation of cardiac pacemakers for the correction of heart block and the use of the laser to coagulate detached retinas or destroy certain malignant tumors.

During the time that surgical care has been increasingly utilized, there has been a trend to delete operating room nursing from basic nursing education programs. This trend has created a shortage in the number of new graduates entering the operating room to practice, probably because new graduates are hesitant to select this area of practice without exposure during their basic nursing education. In an attempt to meet the shortage, some institutions have established postgraduate courses in operating room nursing, and currently there is a trend to establish internship programs. The National Association of Operating Room Nurses estimates the number of postgraduate courses to be fifteen at most, while the exact number of internship programs is unknown (Personal Communication).

Directors of nursing service usually agree that the operating room is a critical care area and that the nursing staff of this area require special knowledge and skills. At present, hospitals assume the responsibility for preparation of nursing staff, primarily through inservice education. Burnside's (1974) study of directors and supervisors of nursing services revealed that while inservice education was popular, it was not necessarily the best method to prepare nurses to perform in specialty units.

To summarize, the individual undergoing surgical intervention presents complex needs for physiological and psychological support and he has a right to quality nursing care during this critical phase of hospitalization. To provide the quality of care needed, competent well-prepared nurses are needed. To date a study has not been conducted to investigate the learning needs of practicing operating room nurses who are at different points in their staff development and career advancement. This study is an attempt to define areas of learning needs and thereby provide guidelines for structuring initial training and continuing educational programs for practicing operating room nurses.

Data Collection

Twenty-four behaviorally-referenced statements were derived from two primary sources; the seven major standards of practice and their assessment factors as defined in "Standards of Nursing: Operating Room" (AORN-ANA, 1975), and "Definitions and Objectives for Clinical Practice of Professional Operating Room Nursing" (AORN, 1969). The statements were worded in terms of nursing actions or behaviors which can be seen, measured, and judged (Greenough, 1969).

The subjects were 1201 operating room nurses who attended the Association of Operating Room Nurses Congress in March, 1975. The respondents were asked to read and rank each statement on a scale 1 to 5 (high to low) according to its importance or priority to his/her learning needs at that time.

Data Analysis

A Principle components factor analysis and varimax rotation (Dixon, 1973) was performed on the responses to the twenty-four learning needs statements. Four factors which account for 60 percent of the original variance were extracted using an eigen value of 1 as the decision rule to stop factoring. The factor titles and their representative items are displayed in Table 1 below.

TABLE I

		Factor Loading
I.	Technical Operating Room Skills	
a.	Identify principles of wound healing and prevent complications whenever possible.	.769
b.	Evaluate new equipment and supplies based on safety, efficiency, and economic factors.	.732
c.	Evaluate (based on scientific principles of microbiology) sterilization methods and products, disinfection and antisepsis techniques.	.717
d.	Identify normal and prevent abnormal physiological changes from occurring when positioning a patient.	.700
e.	Identify unfamiliar medications, types and uses of anesthesia, so as to prevent patient complications.	.691
f.	Interpret and implement accrediting agency standards and national safety codes to insure a safe environment for patient and personnel.	.647
g.	Adjust surgery schedule according to unanticipated events and modify procedures according to individual patient responses.	.524
II.	Nursing Research and Evaluation Skills	
a.	Conduct or participate in a research study.	.851
b.	Apply the findings of research to a situation in the operating room to improve quality of patient care.	.781
c.	Identify and propose areas for research in operating room nursing.	.775
d.	Evaluate effective nursing care in the operating room by using a nursing audit.	.683

III. Direct Patient Care Skills

a.	Identify patient's response and apparent coping mechanisms to impending surgical intervention.	.755
b.	Establish pre-op and post-op visits, use appropriate techniques in establishing a therapeutic relationship with patient, and collect patient data systematically.	.676
c.	Anticipate patient's needs based on differences of cultural background, age, developmental stage, and nature of illness.	.676
d.	Relate clinical findings to patient's symptoms and diagnosis.	.653
e.	Establish a nursing diagnosis and develop a care plan for the patient in the operating room using the problem solving process.	.613
f.	Explain the relationship between patient's pathophysiology and planned surgical intervention.	.597
g.	Identify patient and family needs for health teaching and encourage active involvement.	.585
h.	Identify and report factors that facilitate the effectiveness of nursing actions and suggest alternative approaches to plan of care when necessary.	.501

IV. Personnel Management Skills

a.	Consider responsibilities and pressures of personnel and offer verbal and nonverbal support in periods of apparent stress.	.752
b.	Identify and develop personal leadership skills (supervise, teach, evaluate personnel performance, and promote teamwork in caring for patients).	.749
c.	Identify and develop personal management skills (organization, staffing, staff development, scheduling, budget, cost analysis).	.692
d.	Allow opportunity for personnel discussion and differing of opinions.	.657
e.	Use appropriate interpersonal techniques in working with colleagues and personnel.	.619

The four factors in Table I provide a conceptual framework for sorting the learning needs of practicing O. R. nurses into broad categories. The next step in developing continuing education curriculum guidelines is to identify personal characteristics of practicing O. R. nurses which are related to perceived learning needs. If these personal characteristics can be identified, the grouped learning needs statements

can serve as instructional objectives of learning packages which will appeal to certain types of nurses.

To analyze differences in perceived learning needs of O. R. nurses with various background characteristics, four subscores were computed for each subject. Each subscore was the mean (arithmetic average) response of the subject across all the items most related to that factor (see Table I). This approach could be called unit weighting in that each item related to a given factor is considered equally in computing the subscore. Recent research (Alley et. al., 1976) has demonstrated that these unit weighted scores are highly related to actual factor scores; however, they offer a significant advantage in simplicity of interpretation by "nonstatisticians". Three background characteristics of O. R. nurses were chosen for analysis. These were (1) highest academic degree, (2) years of nursing experience, and (3) staff position. The four mean subscores for nurses with different academic degress are presented in Figure I. Significant differences exist in perceived importance of Technical O. R. skills ($p<.01$; $F=12.49$; $d.f.=3/1140$ and Nursing Research and Evaluation Skills ($p<.01$; $F=3.80$; $d.f.=3/1137$). In particular, note the change in perceived importance of Nursing Research and Evaluation by nurses with Master's degrees as compared to other groups.

FIGURE I

LEARNING NEEDS x HIGHEST ACADEMIC DEGREE

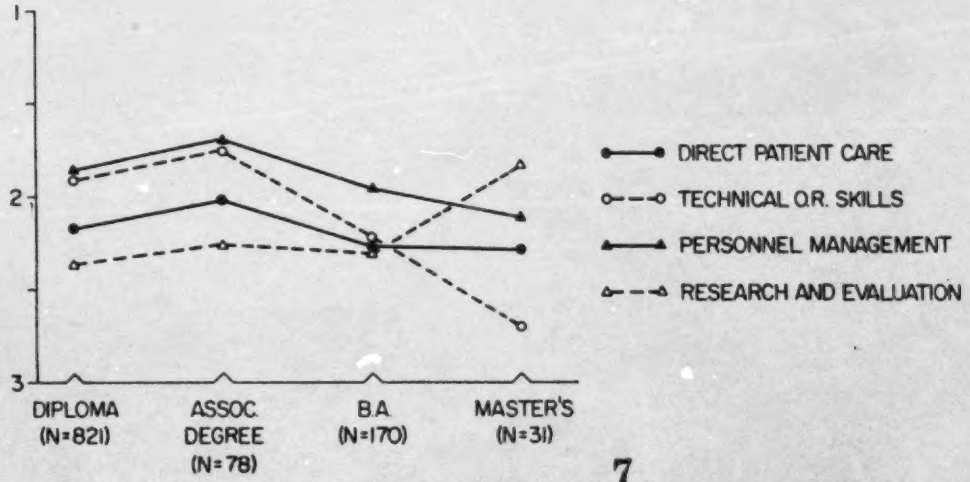


Figure II presents the mean subscores for O. R. nurses with different levels of previous experience. Significant differences exist in perceived importance of Direct Patient Care Skills ($p<.01$; $F=3.41$; $d.f.=4/1092$).

FIGURE II

LEARNING NEEDS x PREVIOUS NURSING EXPERIENCE

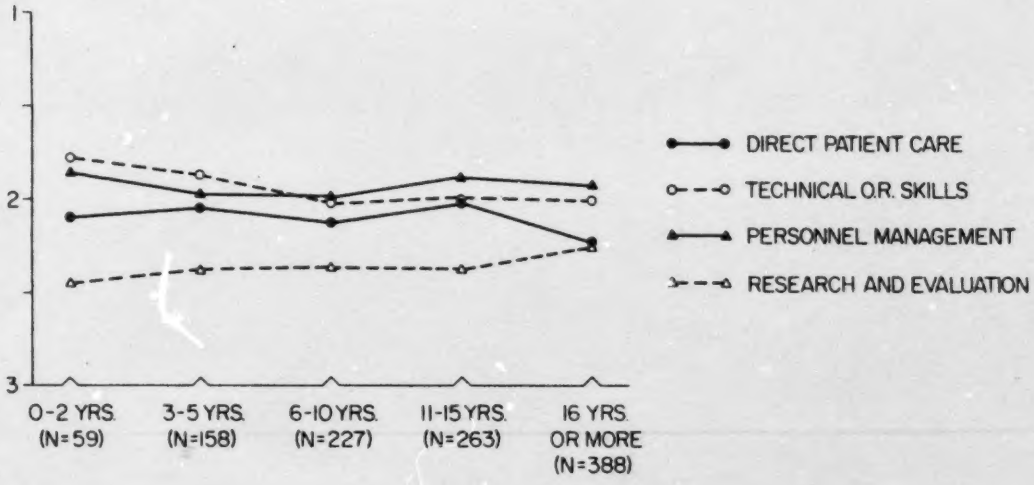
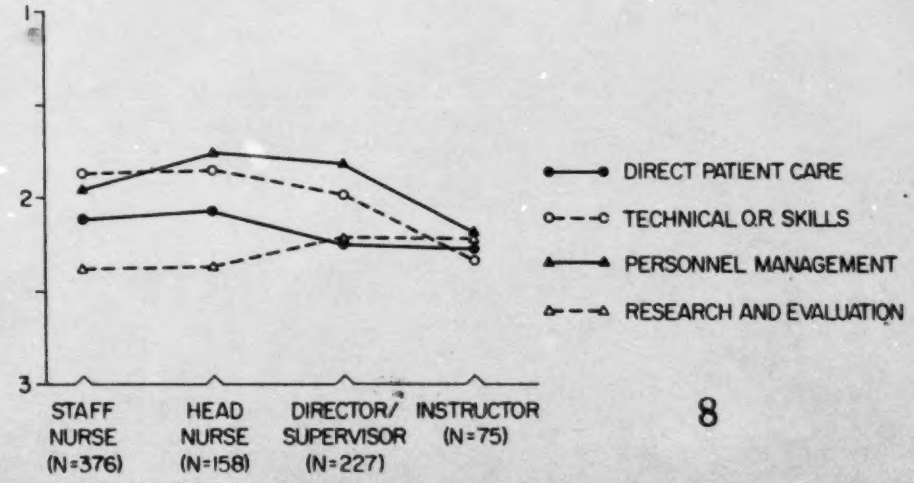


Figure III presents the four mean subscores for nurses at different levels of staff position. Significant differences exist in perceived importance of Technical O. R. Skills ($p<.01$; $F=6.96$; $d.f.=3/996$), Direct Patient Care Skills ($p<.05$; $F=3.13$; $d.f.=3/960$) and Personnel Management Skills ($p<.01$; $F=6.18$; $d.f.=3/1000$).

FIGURE III

LEARNING NEEDS x PRESENT STAFF POSITION



Discussion

A learning needs assessment should provide empirically-based guidelines for planning educational programs. In this study, four broad areas of practicing O. R. nurses' learning needs were identified: Technical Operating Room Skills; Nursing Research and Evaluation Skills; Direct Patient Care Skills; and Personnel Management Skills. These four areas are a logical (i.e., empirically-based) framework for designing initial training or continuing education (C.E.) programs for O. R. nurses. The behaviorally-referenced statements in each area can then serve as instructional objectives for these proposed programs.

A second significant finding in the study is that staff position is an important variable for distinguishing the learning needs of practicing O. R. nurses. In planning C.E. programs, nursing educators should design the content to appeal to O. R. nurses in a given staff position. The ranking of learning need areas within each category of staff position (see Figure III) provides a rough index of group priorities. At this point, we do not feel that specific conclusions should be drawn regarding the learning need area of greatest interest to nurses in particular staff positions.

A replication of this study is planned. If the factor structure remains stable and if staff position is again significantly related to differences in perceived learning needs, we will then test the data statistically to identify areas of highest priority within levels of staff position.

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